



**January  
2016**

**The Surrey Amateur Radio Club**

# **Communicator**



**Happy  
New  
Year**

- Looking Back On 2015

**The Newsletter of the Surrey Amateur Radio Club**

January 2016



## At The Last Meeting...

### SURREY AMATEUR RADIO CLUB

#### TELEPHONE & ADDRESS

(778) 385-1074

12144 - 57A Avenue  
Surrey, BC V3X 2S3  
[SARC@ve7sar.net](mailto:SARC@ve7sar.net)

#### EDITOR

John Schouten VE7TI  
[SARCcommunicator@outlook.com](mailto:SARCcommunicator@outlook.com)

#### WEBMASTER

Howard Ticzon VA7HTZ

#### NET MANAGER

Mike Plant VE7AT

#### QSL MANAGER

Heinz Buhrig VA7AQ

#### REPEATER MANAGER

George Merchant VE7QH

#### IN THIS ISSUE

click on the page number below

Last Meeting 2

The Contest Contender 4

Tech Topics 8

QRM 12

News You Can Lose 13

Annual SARC Awards 14

Radio-Active 16

At The Next Meeting 17

Back To Basics 18

Adam's Junk Box 20

QRT 26

## At The December Meeting, Our Annual Christmas Party





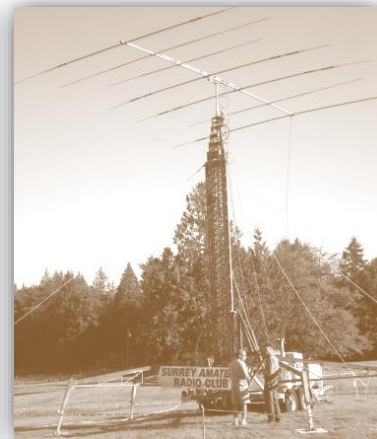
Our Christmas get-together was a success judging by the comments and feedback. It seems everyone had an enjoyable time and almost everyone left with a door prize. The big winner of the night was Al VE7CDC (below) who received a \$100 Visa gift card.

Many thanks go out to Hiu for taking photographs (right), and Jinty VA7JMR for organizing another wonderful event. Your club executive would gladly receive feedback so that we can plan for next December's event.



All the Christmas Party photos are viewable and may be downloaded from our photo site at URL:

<http://tinyurl.com/SARCphoto>



The **SARC Communicator** is published monthly except July and August for members of the Surrey Amateur Radio Club.

To subscribe, unsubscribe or change your address for e-mail delivery of this newsletter, notify **SARCcommunicator @ outlook.com**

Non-members living in the Greater Vancouver area may receive one trial issue.

Beyond our membership area, annual Communicator subscriptions are available for a \$5 donation towards our Field Day fund.

SARC maintains a website at **www.ve7sar.net** that includes club history, meetings, news, photos and other information.

### **Kalmar Koffee Klatch Reminder**



The SARC Weekly Koffee Klatch has been moved to Saturday at the same place, the Kalmar Restaurant at 80th and King George Hwy in Surrey at 9:00 am. Bring your significant other, bring your family, see old friends and have fun.

### **On The Cover...**

We awarded our annual SARC Amateur of the Year certificate plus 3 new recognitions at the Christmas Party. You will find the information on the deserving winners on page 14.

The Directors of the Surrey Amateur Radio Club wish you and yours a very happy New Year!



January 2016



## The Contest Contender

John Brodie VA7XB

### *CQ Worldwide DX Contest*

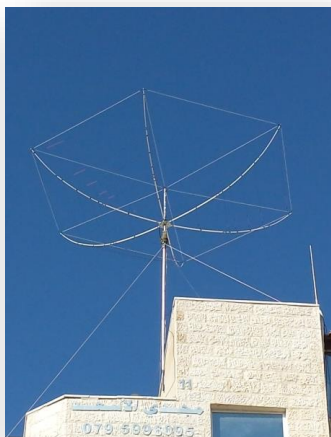


The CQ WorldWide DX contest (for CW) started, as most of them do, on Friday evening at 0000 UTC but, with 4 grandkids hanging around looking for attention, it just wasn't possible for me to take advantage. Besides I enjoy contesting most in the morning hours when European contacts are possible. Contesting is not something I do competitively, as to be serious you really need to devote virtually your entire weekend to the task and I'm not willing to give up everything else just for a contest. But it is important to keep up your skills and get practice with the logging software, so I try and put in a few hours when I can. The quality of CW is quite high nowadays because it is usually machine-generated code which is of perfect quality. Long gone are the days when you could complain about poor CW sent with a semi-automatic bug or hand key. Sunspots are also starting to wane as the cycle starts its downward trend, so it is always a guess these days whether band conditions will hold up and produce any kind of stimulating DX contacts.

So on Saturday morning, I had exactly 1 ½ hours between 8 am and 9:30 when we planned to leave with the grandkids for an outing at White Rock. The Saturday club breakfast would have to be given a miss this time if I was to catch some DX. Well, much to my surprise, right out of the gate, 20 m was open to Europe so I warmed up the equipment, pointed the beam to the north and began calling. I was in luck as within a 90 minute period I was able to work the following stations: JY9FC (Jordan), 4X7R (Israel), P3F (Cyprus), CN8KD (Morocco), 4X2M (Israel), P33W (Cyprus) in Europe, YB8RW (Indonesia), ZD8W (Ascension Island). The very last

station before I shut down at 9:30 was the jewel in the crown, 5H3EE (Tanzania). Not bad for 90 minutes of effort.

Now I'm not saying that this takes a lot of skill when you are running 750 watts into a 3-element yagi, but it really is exciting to make the contacts while competing with all the other big guns. Later on Sunday afternoon, I was able to add to the score, but nothing very exotic came my way. Only 119 contacts for this contest, but the main thing is that I was able to snag a few rare ones and get some CW practice. For once I had no issues with the computer hanging up or crashing. It appears that grounding the case of the PC to a common equipment ground solved that one several months ago.







*2015 CQ Worldwide  
DX Contest*



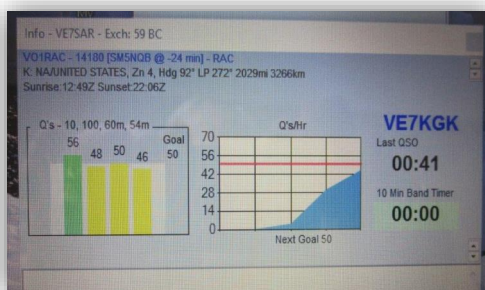
### *2015 RAC Winter Contest at VA7XB*



Three members challenged the RAC Winter Contest for 8 hours on Saturday Dec. 19th. There was lots of activity from both Canadian and US stations, and "Running" was found to be the most productive means of making contacts, as Canadian stations were in demand. Both Kapila VE7KGK and Sheldon VA7XNL got into the groove quite quickly and the Qs started piling up. This and other contests provide valuable opportunities for skill-building. They also require the station-owner to ensure his equipment is working as it should.

In this case, it didn't at first, as there were some software issues to resolve before the contest began. Thereafter, everything proceeded smoothly. All contacts were made at 100 watts. Voice macros were recorded ahead of time, in order to ease the strain of repetitive calling CQ. Also on hand was Robert Fishwick VA7FMR who joined the team to observe and get an idea of how contesting is done nowadays.

~John Brodie VA7XB



January 2016



## The Contest Contender II

Fred Orsetti VE7IO

### More RAC Winter Contest Activity



For the past few RAC contests I, Fred VE7IO, have been fortunate to have the use of VE7RAC thanks to the BC/Yukon RAC Director Bill Gipps, VE7XS. Having the use of VE7RAC is an advantage as a contact with us is worth 20 points compared to 10 points for regular Canadian station or 2 points for a QSO with a USA station.

For this year we had basically the same team members as last year, however, 3 of last year's operators could not make it this year. Our team for 2015 was Christine, VA7NLF, Ken, VE7BC, Mike, VE7ACN, Stan, VA7NF, and myself, Fred, VE7IO.

Band	Mode	QSOs	Pts	Sec
3.5	CW	136	746	8
3.5	LSB	54	456	7
7	CW	310	1330	9
7	LSB	14	86	2
14	CW	184	724	7
14	USB	262	1236	11
21	CW	250	1012	9
21	USB	243	1196	11
28	CW	124	498	8
28	USB	119	510	4
<b>Total Both</b>		<b>1696</b>	<b>7794</b>	<b>76</b>

Over the past 5 months I completed some fairly major work on the two beams, the SteppIR and the Mosley CL-33 tri-band. In November we relocated the 40 meter dipole and put up a 6 meter dipole (for mults). Having done all this we were still a bit short on antennas but, damn the torpedoes it was all ahead full. We decided to run 3 stations all located in my rather small shack, it was cozy and very warm. The third station, Stan's Flex 6700 was setup on the desk I normally use for the station manager computer so to make room we moved station manager position to a temporary table. Yes, we did have

220v for all three amps. We used my Icom 775DSP with my QRO amp, my Icom 756pro with Ken's Alpha 87A amp and Stan's Flex 6700 with my Command Technology amp. All three stations ran full power with relatively minor intermodulation, but there was some.

The contest started at 0000z on Saturday, 4:00pm local time Friday, and we were off

to a good start. Around 8:00pm local time we were reduced to 40 and 80 meters with very little activity on either band, we shut down for a few hours around 10:00pm. I was back on 80 and 40 at 0400 local time working one band then the other, it was like musical chairs.

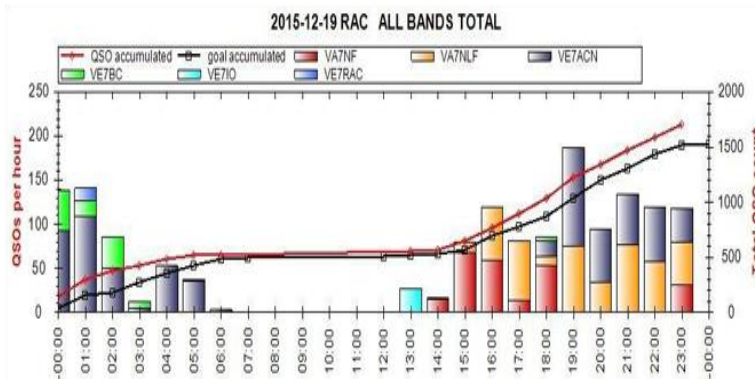
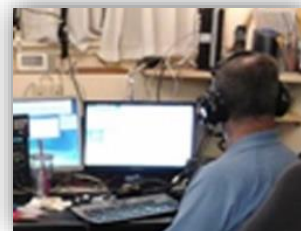
Saturday came and the bands opened up. Stan and Christine arrived at 0600 and we settled down into some serious contesting, Stan on CW and Christine on phone. Mike, VE7ACN and Ken, VE7BC, arrived around 10:00am to take over. Unfortunately Ken was not feeling well and had to leave early so the others just extended their shifts.

The station managers position was setup with propagation monitoring as well as monitoring the rates compared to last year. You can see by the chart that we maintained slightly better performance this year over last. The red line is this year and the black line is last year and our goal.

So how did we do?

2015 score: 592,344 Operating time 20 hrs

2014 score: 488,796 Operating time 20 hrs







# RAC News

## CARHoF Inductees

The Canadian Amateur Radio Hall of Fame (CARHoF) award was created in 1988 by the Canadian Amateur Radio Federation, which later merged with Canadian Radio Relay League to form Radio Amateurs of Canada. The award was presented to the Radio Amateur who "performed outstanding achievement and excellence of the highest degree, for serious and sustained service to Amateur Radio in Canada, or to Amateur Radio at large". For 2015, two nominees are being appointed to the Hall of Fame. The two are Jim Dean VE3IQ SK of Ottawa, and Farrell Hopwood (Hoppy) VE7RD of North Vancouver.

Bill Gipps VE7XS, RAC Director for BC and Yukon, said, "On behalf of the President and Directors of Radio Amateurs of Canada, it is my honour and pleasure today to induct J. Farrell Hopwood VE7RD to the Canadian Amateur Radio Hall of Fame for the year 2015."

Let me give you some background of J. Farrell Hopwood VE7RD, better known as Hoppy. He was born and raised in British Columbia and began his career with CP Telegraphs, then moved to the BC Telephone Co. There he worked his way through several departments until retirement in 1992.

In 1955, Hoppy obtained his ham radio license and was a member of several radio societies, including Director and Executive positions with the Canadian Amateur Radio Federation. At that time, the Canadian Radio Relay League also competed to represent Canadian hams. As CARF president, Hoppy's goal was to negotiate a merger with CRRL into a single national society.

This was a complex process, and when roadblocks occurred, it was up to the two Presidents to find a way around. The merger was finally achieved in 1993, and Hoppy was appointed the first president of Radio Amateurs of Canada, and remained in this post for six years. Canadian amateurs owe Hoppy much gratitude for his role in creating RAC and leading it through the early critical years."

Hoppy was an honorable member of North Shore ARC for many years.

In further CARHOF news, following the nomination by the Board of Directors of Radio Amateurs of Canada (RAC), the Board of Trustees of the Canadian Amateur Radio Hall of Fame is pleased to appoint Larry E. Price, W4RA, of Statesboro, Georgia as an Honorary Member of the Canadian Amateur Radio Hall of Fame.

The appointment is in recognition of Larry's many years of support of Radio Amateurs of Canada and Amateur Radio in Canada. Honorary appointments can only be initiated by the Directors of RAC. This is the first honorary appointment in the history of RAC.

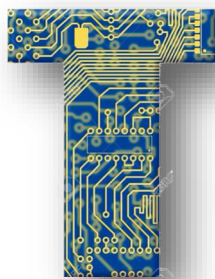
Larry's induction to the Hall of Fame will take place in early 2016. A summary of his contributions to Amateur Radio will be published in future issue of The Canadian Amateur magazine.

~ Ed Frazer, VE7EF, Chair, Board of Trustees  
Canadian Amateur Radio Hall of Fame



*Hoppy (centre) flanked by Ed Frazer (left) and Bill Gipps (right)*

January 2016



## Tech Topics

Charles Hanebuth KH6HNL

### *An End-Fed 6-40m Multiband HF Antenna*

*This project produces an effective but inexpensive, multi-band, end fed HF antenna matchbox that is quick and easy to setup and use, and may provide an opportunity to set up a stealth antenna for restricted residences.*

#### Introduction

This project produces an inexpensive, multiband, end fed HF antenna matchbox that is quick and easy to setup and use. The end fed feature adds portable convenience, but does present another issue. The problem with an end fed half wave antenna is that the antenna presents high impedance, creating a significant miss match with the usual transceiver impedance of 50 ohms. This miss match is significantly greater than typical tuners can accommodate without a matching transformer.

This project creates a trifilar wound, 9:1 UNUN (unbalance to unbalance) toroid matching transformer that will match the high input impedance of an end fed antenna into the range where most antenna tuners can produce good performance. The matchbox handles 100 watts of power. This project requires an antenna tuner to achieve satisfactory SWR.

The matchbox project uses readily available common hardware and materials listed below.

#### Matchbox Parts List

- 1 small plastic enclosure and cover (shown left)
- 1 powdered iron toroid [T130-2](#)
- 3 20" pieces of 22 AWG solid insulated copper wire in red, green, and black 2 # 8-32 x 3/4" hex head machine screws
- 2 # 8 lock washers
- 2 # 8 ring wire lugs
- 2 # 8 flat washers
- 2 # 8 lock washer/nut combination
- 2 #8wingnut
- 1 SO-239 panel mount connector to fit keyed enclosure opening
- 30 foot # 18 AWG insulated stranded wire antenna with ring lug attached



Plastic Enclosure

Few drops of clear PVC adhesive to secure cover in place Clear silicone caulk to secure toroid in place

#### Preparing the Matchbox Plastic Enclosure

Drill one 5/8" hole for the SO-239 connector, and one 11/64" hole for the counterpoise wing nut on the lower side of the enclosure. Next, drill an 11/64" hole in the upper right side of the box for mounting the antenna connector.

#### Toroid Winding

Next wind the three 20" pieces of insulated solid wire onto the toroid. Place the wires as shown green-black-red, and wrap the toroid 9 turns so that it looks like the photo on the right. Notice there are three wires extending from the left winding and three wires extending from the right winding. As the connections are completed, the steps refer to the specific wires by left or right and color.



NOTE: Count turns by counting the number of times the wire goes thru the toroid center.

Crimp together and solder the *left black wire* with the *right red wire*. When the step is completed, it will look like the right photo.



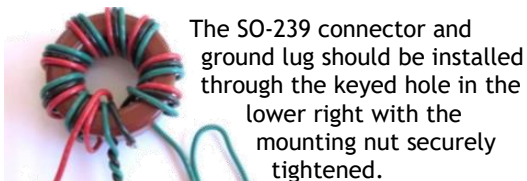
The next three steps should appear as shown in the first photo on page 3. Crimp and solder a #8 lug to the *left red wire* about 2" from the toroid. The completed lug will later connect to the antenna connection bolt on the upper inside of the enclosure.

Twist the *left green wire* with the *right black wire*. Strip the ends of the two wires and twist together at about 2". This twisted pair will



solder to the center connection of the SO-239 connector in a later step.

Trim and strip the remaining *right green wire* at about 2". Cut an additional 2" piece of green wire, and crimp and solder both wires to a # 8 lug. The 2" green wire will connect to the ground connector on the SO-239 already installed in the enclosure. Strip remaining green wire end 3/8" and bend into a hook for connection to the SO-239 ground connector.



The SO-239 connector and ground lug should be installed through the keyed hole in the lower right with the mounting nut securely tightened.

Solder the green and black twisted pair to the SO-239 center connector.

Solder the green wire hook to the ground lug on the SO-239 connector.

From inside the box, place an 8-32 machine screw through a lock washer, the # 8 lug on the green wire, then through the lower 11/64" mounting hole. Place a flat washer on the outside protruding machine screw followed by # 8 lock washer/nut and tighten securely. Place a # 8 wing nut on the machine screw to finish the *counterpoise connector*.

Position the toroid inside the box to allow connection of the red antenna wire lug to the 8-32 machine screw on the upper right box side.

Place an 8-32 machine screw through a lock washer followed by the # 8 lug connector on the red wire, and put it through the 11/64" hole on the top. Place a flat washer on the outside of the box followed with a # 8 lock washer/nut. Tighten the nut securely. Next, place the wing nut on the *antenna connector* and your project appears as shown above.



A small spot of clear silicone compound is used to secure the toroid from movement in the enclosure. The only remaining assembly step is to securely glue the box cover in place with PVC cement.

### Preparing the Antenna Wire

Matchbox performance will be determined by two factors: The length of the antenna wire, and the capability of the tuner. The length of the antenna wire should be between 24 and 60 feet for best performance. Additional counterpoise is not normally required, as the coax shield provides the counterpoise function. Wires longer than 60 feet may have excessive impedance for some tuners to properly match. Wires shorter than 24 feet may not radiate as effectively. A 30 foot insulated 18 gauge stranded wire antenna and connecting lug is included with the project and should meet most requirements without need for any counterpoise.

Experience has shown that most external tuners and some internal tuners will tune 80-6 meters with an antenna length of 24' to 30'. If a longer antenna is desired, the provided antenna can be lengthened.

Some tuners, in particular internal tuners, may not tune the full 80-6 meter range. You may need to try different wire lengths to optimize your antenna configuration. If you are having difficulty getting your rig to tune, start with a 26' wire. This should produce good results on at least 40-6 meters using the narrowest performance range of internal tuners.

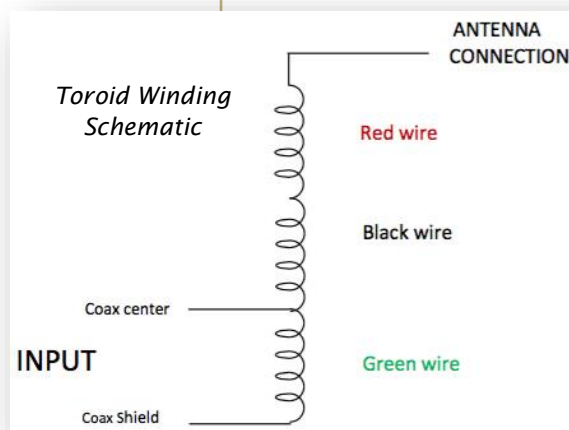
Best performance is achieved with a coax of 16' or longer with the coax shield providing the counterpoise function. Additional counterpoise is usually not required in this design, although the lower wing nut provides a convenient counterpoise connector if needed. The end fed antenna system works well in horizontal, sloper, and vertical configurations.

Observe established safety practices when working with antennas, and avoid proximity to power or utility wires. Permanent installations should be equipped with appropriate static and lightning protection.

Keep amateur radio safe and fun!



*The commercial version*



January 2016

***It took me 10 minutes to install and WOW - within 10 minutes I made my first HF contact (from CT to GA). And in the span of 4 hours made 3 more !! I was transmitting just 5 Watts from Yaesu 857ND using this antenna. This antenna rocks ! Thanks a ton ! 73 May 2012***

### ***Feedback on 6-40 End Fed Matchbox Antennas***

The antenna is amazing. I receive fantastic signal report from DX stations as well as hams around the country. I previously used a short version GR5V that was in an inverted V configuration on the roof of our house. This antenna was noisy but worked. Your antenna out performs the prior antenna and is much quieter. Thanks again for the fine product that your club offers. May 2012

The 6 - 40 Matchbox antenna works great! Easily tunes with the Z100 tuner - very low SWR's on 20m thru 10m. Antenna was up about 45 feet on tree branch - wire length was about 52.5 feet, slight slope, 55 feet of coax, line isolator at radio. Work Hawaii for the very first time. Guess the antenna wanted to call home :) 5-7 report, 100 watts, 15 Meter band, Icom 718. A great portable antenna that I will use often at Montrose Harbor along the lakefront in Chicago. Thank you for a fine, well made product. April 2012

It arrived today in fine shape. I got it up in the air this afternoon using a 30 foot radiator. Top is at 45 feet. Loads on all bands 80-10M with my LDG auto-tuner absolutely no problem. My first QSO was KH7X in the ARRL SS contest with 100W. Amazing. This thing rocks! It's a great antenna! Nice job and a great buy. November 2011

I set-up my jackite pole today and tried a 68' wire with the 9:1 unun matchbox. I set it up as an inverted L with about 26 feet vertical and 42 feet horizontal. With my IC-703 it tuned 80 through 6 all well below 1.5:1. I am going to leave the antenna up a few days and make a few contacts. I think the matchbox is terrific. October 2011

My 6 - 40 meter end fed arrived through the UK holiday mail and I departed from my norm of a sloper and mounted it vertically on a 10m fishing pole. It is surprisingly effective and rewarded me with a surprise contact on 17m into the Falkland Islands at 20:30UT last night. January 2012

When I attached it to a 10m fiberglass fishing pole and went vertical - wow! Easy 5/9 contacts out to 6,000+ miles when propagation was anything better than the worst. My simple ATU easily matches the antenna with SWR never greater than about 1.4 on any band it is built for. December 2012

You can dither and procrastinate, but with this antenna, you'll be talking to the world in no time on any

band that happens to be hot - and with your hard-earned cash hardly touched! January 2012

Just wanted to report back that I have tossed the antenna into a tree about 20' up in an inverted vee shape and I am pleased to report that I can tune anywhere I need on 40-10M using the TS-590 internal tuner!! My first contact was on 40M within 10 minutes of erecting the antenna and was all the way to TX from my condo here in MI using just 10 watts. This is by far the best HAM related investment I have made in a long time. Living in a condo with strict association rules, I am able to conceal this wire in a tree out my bedroom window and talk all over. I'm very happy and would recommend this antenna to anyone in a similar situation. March 2013

I have had your multiband end fed antenna installed here in Singapore for a few weeks now and am very pleased. I used the wire from my previous antenna which is 66 feet long. It works beautifully! I have it hanging vertically outside my 15th story apartment window on a 5 foot horizontal pole (to get it away from the reinforced concrete building). A couple of fish weights on the end keep it from blowing around too much. I would recommend this antenna to anyone who is facing a challenging QTH. April 2013

I received my antenna yesterday, a quick 4 days since I ordered it. I attached it to a 31 foot pole and my IC-706MK2. Within minutes, I made my first contact with 9A4KW in Zagreb, Croatia on 20 meters. Being able to reach out over 4,000 miles gives me real confidence that I have found my portable antenna. Thanks for your rapid response and fine product. May 2013

In only 2 weeks of casual on-air time. If you could see how I had to zig-zag it through a big tree above the roof of my RV, you'd be saying like I am, "how the heck can that work? I worked 90% of the stations I called, and just added Mexico City on 15m that gave me a 5x9. September 2013

Just wanted to let you know how pleased I am with my ERAC matchbox antenna. I put the EARC antenna in the backyard with the feed point at 4 feet and the wire sloping up to 35 feet. I have 125 feet of coax feed line. My transceiver's built-in antenna tuner will adjust the SWR to below 1.2 to 1 on all bands 80-6



meters. Last weekend I worked 65 countries on 5 continents. I live in an antenna restricted community and this antenna has allowed me to enjoy ham radio again. February 2014

I used the EARC Matchbox today. It works GREAT on 20m with a 30 ft radiator in vertical positioning, fed with 25ft of RG175/u coax. I've been talking up and down the east coast with 3W on SSB all afternoon! People ask me to repeat my power output again and again. I can't wait until I get the chance to use it at night, where I think it'll really shine! This has a permanent place in my portable kit. Thanks for the great product! April 2014

I performed a simple install in Virginia making it vertical by using a 28 foot fiber glass kite pole. Within 30 minutes (NO KIDDING) I was receiving Lebanon on 17 meters! I also worked Russia and Eastern Europe that night on 20 meters. I love this antenna and I give it a 100% (5 STAR) rating. May 2014

This little box is magic. NY, IA and NM from GA with ease on 100w June 2014

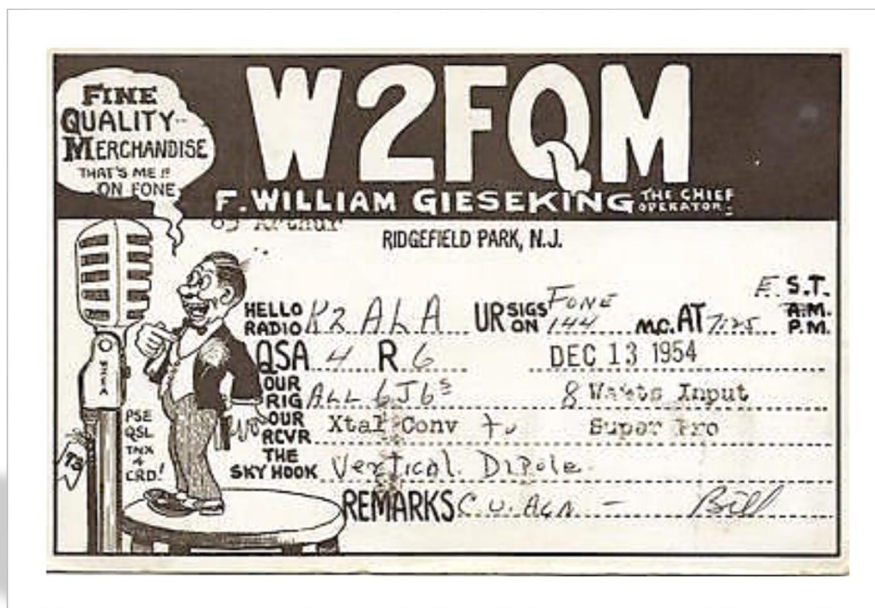
Just wanted to let you guys know, this matchbox is wonderful. I built the matchbox, connected it to 55 feet of solid #14 about 20 feet in the air. My rig is a Yaesu FT-817ND connected to a MFJ-971 tuner with coax running between the tuner and the matchbox. So far I have worked Slovenia twice, Morocco, St. Helena Island, Cuba, Cost Rica, Vermont, Wyoming, Florida, North Dakota, Brazil, and Colombia. This setup works really well on the higher bands. Thank you for putting this design on the internet. I like it so much its become permanent here. September 2014

This antenna continues to amaze me. It worked well U-shaped "indoors" with 50 watts, and now outdoors as a sloper. It easily loads 10-40m with my TS-570s internal tuner. I'm sold on it and own two of them now. I'm working at least 90% of the DX I chase. I have no RFI in the shack either. November 2014

~ Charles Hanebuth KH6HNL  
Reprinted with permission

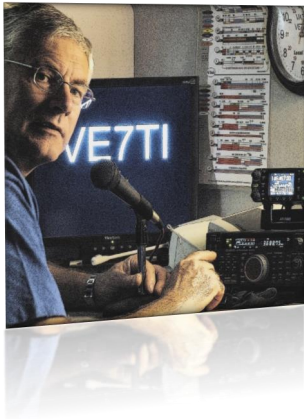
**You may purchase an assembled End Fed Matchbox 6-40 Meter Antenna with USPS priority mail delivery in U.S. on eBay**

**We ship promptly upon payment and you will likely receive your order in 5 days or less. If you have any questions about your order, please email [chanebuth@yahoo.com](mailto:chanebuth@yahoo.com)**



Otto Eppers' QSL Card Of The Month.  
Don't know Otto? See The Communicator September 2015

January 2016



## QRM

...from the Editor's Shack

*Do you have a photo or bit of club news to share?  
An Interesting link?*

*Something to sell or something you are looking for?  
eMail it to [SARCcommunicator @ outlook.com](mailto:SARCcommunicator@outlook.com) for inclusion in this column.*

## Under The Weather..

Dennis Jackson VE7DGJ has been undergoing some medical procedures. Thankfully he is up and around and was recently spotted at lunch at the Kalmar. All the best Dennis and make a speedy recovery... we miss you at breakfast!



*New member Robert Fishwick VA7FMR has volunteered to take over as membership administrator while Brett is occupied with family matters.*

## CW Skimmer Developer Recognized

CW Skimmer Developer Alex Shovkoplyas, VE3NEA, Receives RAC Radio Amateur of the Year Plaque

<http://www.arrl.org/news/cw-skimmer-developer-alex-shovkoplyas-ve3nea-receives-rac-radio-amateur-of-the-year-plaque>

## Looking To Build An Antenna?

Some of you may find this software helpful if you are calculating antenna element length. <http://www.hamuniverse.com/dipivcal.html>



## The 2015 Field Day Video

As has become a bit of a tradition, the annual Field Day video premiered at the Christmas party and is now available to watch on-line.

<http://tinyurl.com/SARC-FD2015> (12 minutes)

<http://tinyurl.com/SARC-FD15short> (6 minutes)





## Page 13—News You Can Lose

### The Lighter Side of Amateur Radio

Dear Tech Support,

Last year I upgraded from Boyfriend 5.0 to Husband 1.0 and noticed a distinct slowdown in overall system performance, particularly in the flower and jewelry applications, which had operated flawlessly under Boyfriend 5.0.

In addition, Husband 1.0 uninstalled many other valuable programs, such as Romance 9.5, Personal Attention 6.5, and installed undesirable programs such as NBA 5.0, NFL 3.0 and Golf Clubs 4.1. Conversation 8.0 no longer runs, and Housekeeping 2.6 simply crashes the system. Please note that I have tried running Nagging 5.3 to fix these problems, but to no avail. What can I do?

Yours, Desperate.

Dear Desperate,

First, Keep in mind that Boyfriend 5.0 is an entertainment package, while Husband 1.0 is an operating system. Please enter the command "I thought you loved me, html", download Tears 6.2 and be sure to install the Guilt 3.0 update. If those applications work as they were designed, Husband 1.0 should automatically run the applications Sorry Dear and Repentance 3.0. However, please remember that overuse of the above applications may cause Husband 1.0 to default to Grumpy Silence 2.5, Happy Hour 7.0 or Beer 6.1. Please note also that Beer 6.1 is a risky application that may download the Snoring Loudly Beta program.

Whatever you do, DO NOT under any circumstances install Mother-in-Law 1.0 (it runs a virus in the background that will eventually seize control of all of your system resources).

In addition, please do not attempt to reinstall Boyfriend 5.0 while on Husband 1.0. This program is unsupported and will crash the system.

In summary, Husband 1.0 is a great program, but does have limited memory, and doesn't learn new applications quickly. You may consider running additional software to improve both memory and performance of the system. We recommend Cooking 3.0 and Hot Lingerie 7.7.



January 2016



## Annual Awards

Presented at the Christmas Party

### *The Unsung Hero Award*

#### Presented to Scott Harelak VE7HA

It is my honor to present the Unsung Hero Award.

This person has been with the club approx. 10 years and for the last 5 he has brought a positive balance to the club meetings.

His favorite colours are black and green, his least favorite is red. He is very popular as everyone checks in with him each year.

He always tries to keep a positive flow to the meetings and achieves this about 50/50.

Without him the club would not be in the position it is in now.

It is a thankless job but he always does it with a smile, unless you're asking for money.

All kidding aside he is one of the hardest workers on the executive. It is not easy keeping the books for such a large and active club like SARC but he makes it look easy. So without further ado I would ask our Treasurer Scott to come up and accept the Unsung Hero Award for 2015.

~ Presented by Al VA7ALZ



### *The Member's Choice Award*

#### Presented to John Brodie VA7XB

I have known John for a number of years. I can't say we are great friends - yet - but we share a passion for the Amateur Radio hobby and I have had the pleasure of working with John on projects, as well as on the executive of the Surrey Amateur Radio Association, for many years.

We spent about a year working on the SEPAR's Grab and Go kits - just about every Sunday morning at John's place. There I saw the attention to detail and dedication to 'doing it right', and doing it over to make it better than just 'right'.

I have been most impressed with John's dedication to this club. Over many years, he has stood up and taken the leadership role in moving this club forward. He has always sought to do the 'right' thing - and has gone out of his way to solicit input, feedback and constructive criticism.

He cares deeply about people, about making sure we always strove to make the best decisions we could to benefit the club, and to respect the people who belonged to the club, or interfaced with the organization. It is my pleasure to present this award - richly earned by John over many years. I personally look forward to many years of working with John, and growing my friendship and respect for him.

~ Presented by Bill Gipps VE7XS





## The John Brodie Award

### Presented to Howard Ticzon VA7HTZ

I'm pleased to be presenting this Award of Excellence to a relatively new member of SARC.

The award relates to one of many jobs that need doing to keep the club growing and vibrant, but without the glory that comes with other jobs. A few years back another of our members created the current version of our website and it was a good one. It still is one of the best thanks to Hiu Yee VE7YXG who maintained it for a couple years. Last year Hiu announced it was time for someone else to take over, so we asked for volunteers and Howard Ticzon VA7HTZ stepped up and took over from Hiu.

Howard has done an excellent job since that time. He's responsive to the requests of the Executive, and has shown initiative in making the site more attractive, modern and useful to both members of the club and those who might consider joining based on what they see on our website.

We thank Howard today for his excellent contribution. Howard was not able to be here today, but we will present him with this certificate at the next opportunity.

~Presented by John Brodie VA7XB



## The SARC Amateur Of The Year Award

### Presented to Jinty Reid VA7JMR

It is an honour for me to be able to present this year's Amateur Of The Year award.

The criteria for this award is that one must be a genuine Amateur, always willing to help others. Someone who sees the big picture when working on club projects and has the goal of moving our club forward. And finally, exemplary conduct and respect for others on the air.

The 2015-2016 Amateur of the Year award is presented to Jinty Reid VA7JMR.

~Presented by Mike Plant VE7AT



## Hmmm !?!

A Ham was participating in a foxhunt. Suddenly, chasing a strong signal, he found a fox hidden beside a shallow pond. As he was attempting to mark his card he discovered a frog who, to his great surprise, started to speak! "Kiss me and I will change into a beautiful princess, and I will be yours for a week."

He picked up the frog and placed it in his pocket. As he continued the foxhunt, the frog repeated its message. "Kiss me, I will change into a beautiful princess, and I will be yours for a whole month!"

Trying to ignore the frog, the Ham continued to look for foxes and once again the frog spoke out. "Kiss me... I really will change into a beautiful princess, and I will be yours for a whole year!"

Finally, the guy turned to the frog and exclaimed, "Look... I'm a Ham, I'd rather have a talking frog!"



January 2016



## Radio-Active

Jinty Reid VA7JMR



**Fred Reichstein**  
**VE7MPI**

Fred was born in 1939 in Berlin, Germany. Sadly his mother died when he was only 12 years of age. During the war the family was moved to Schelesia (now in Poland) because of the bombing in Berlin. From there they were moved by the Polish to Hamelin in West Germany where Fred grew up. He attended school until the age of 15 and then took an apprenticeship as a gardener and worked at several places, e.g. tree nurseries. He served in the army for 18 months in the early 1960's, mainly as a medic. Due to the difficult conditions, an aftermath in Germany of the war, he decided to emigrate to Canada in 1961. He landed in Winnipeg where he was fortunate in getting a job in charge of a 42 acre tree nursery for the city.

It was in Winnipeg at a German dance hall that he met Pam, who worked for Indian Affairs, and whom he married in 1969. Pam was from Wales and they travelled to Cardiff in South Wales to get married. Because of the severe winter weather in Winnipeg and the fact that his gardening was not a full time job, the couple moved to Vancouver in 1970. There Fred worked at the University of BC for 25 years as a landscape gardener until retiring in 1994. Pam retired from working for the Federal Government after 30 years in 1995. They lived in Richmond for 21 years before moving to Surrey where they have now been for 20 years? Fred and Pam were not blessed with children, so except for Fred's older sister who lives in Germany, and a few of Pam's family who live in Wales they are a small family.

Fred's interest in amateur radio began while he was a boy in Germany when he played around with crystal parts in an attempt to build a radio? In Canada in 1962 he had a CB radio and went on to get his Basic License in 1962 while a member of the New Westminster Amateur Radio Club. He joined the Abbotsford Radio Club for a while until in 2004 he became a member of SARC.

His first radio was a Kenwood 120 which he still uses. He also has an ICOM 720Am, an 746 Pro which he uses at the present time for HF communication and an ICOM 706 Mark 11G and several hand held radios which are used on 2M and 220 MHz and 440MHz. The HF antenna is an inverted V for 40 and 80 MHz and 440 MHz. For 2M a vertical antenna is used. For 220 MHz a vertical Isopole antenna is used. Fred has an APRS in his car. His favourite thing to do in amateur radio is building and testing antennas and talking on the radio to friends from as far away as Russia and the Arctic.

Among his other interests, Fred enjoys fishing and loves to garden and he and Pam like to travel, mainly cruising, and have been to New Zealand, Japan, Iceland, Panama Canal and have seen the Pyramids of Egypt and various countries in Europe.

Pam says Fred is very hardworking, especially in the garden, and spends hours in his radio shack. She states he is very caring and helpful around the house but can be determined at times. Both Pam and Fred enjoy being in their home and like a quiet life. They have been married for 46 years. As they have become older they have developed health problems which can be challenging at times. We appreciate your knowledge and skills Fred from which our club benefits greatly.

~ Jinty Reid VA7JMR







## At The Next SARC Meeting

### Amateur Radio Direction Finding (ARDF)

ARDF Canada <http://ardf.ca> is our scheduled guest for January. The program includes:

- What is ARDF Foxhunting?
- The development of a high performance/low cost 80m foxhunting receiver and micro transmitter
- Demonstration of the 80m receiver and micro transmitter
- A typical local ARDF Fox hunt
- Summer event plans



Their interest is in introducing their part of the Amateur Radio Hobby to as many Amateurs as possible in the lower mainland and providing them with effective, low cost equipment and an opportunity to use this equipment in a number of

simple events over the Spring to Fall period.

We think that this presentation will be of interest to those who just want to know about a different part of ARDF, to those who are interested in some interesting technical developments in the receiver and transmitter project, those who may be interested in kit building and those who would like to combine a little exercise with their Amateur Radio Hobby.

The Presenters for the January Meeting:

#### Keith Witney VE7KW

Keith was first licensed in 1964 as soon as he was eligible at 15 and obtained his Advanced license in 1965. Keith joined the BCRadioSports group in 2010 and participated in local events and an event

in Khabarovsk Russia as well as the Region 2 event in Albuquerque.

Keith built the 2m foxes currently used by BCRadioSports as well as constructing his receivers based upon the DF1FO designs. Keith also participates in HF contests and has been on several DXpeditions.

#### Les Tocko VA7OM

Les, VA7OM, born in Slovakia in 1948. First licensed in 1967 as OK3ZAX, built first 80m receiver for ARDF in 1966, active foxhunting from 1967 to 1974, first place in European championship in Hungary in 1972. Moved to Canada in 1982, calls VE4AMW, VE6AWA and finally VA7OM. Attended ARDF Word Championship in 2010.

Les is the designer of the 80m receivers and mini-foxes and has built a set of full power 80m transmitters as well as his own receivers based upon the DF1FO designs. Les also is a HF contester and DXer when he is not designing and building equipment.

#### Amel Krdzalic VA7KBA

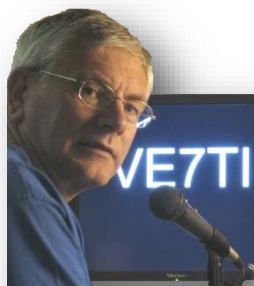
Amel was born in Bosnia in 1969. His father was an amateur radio operator with the highest operating class license. He introduced Amel into ARDF when he was 7. Since then Amel has participated in many events and competitions on both 2m and 80m. His highest achievement was as National Champion in the junior category. When Amel moved to Canada he started a non-official group of enthusiasts as the BCRadioSport group which now operates in the lower mainland BC to promote the sport.

Amel is an active member of the group and organizer of many ARDF events. Amel represented Canada in the World ARDF Championships in 2010.





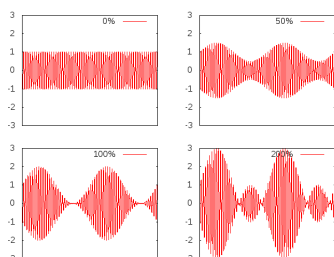
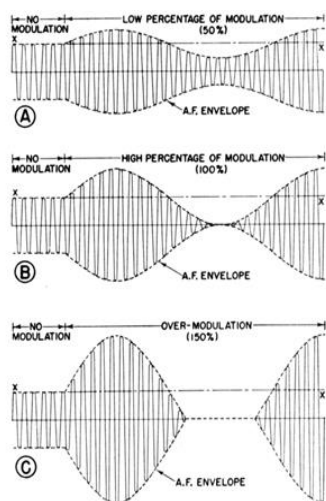
January 2016



## Back to Basics

John Schouten VE7TI

*From The Basic Question Bank*



### Question B-001-019-003 (A)

An amateur station using radiotelephony must install a device for indicating or preventing:

- A. overmodulation
- B. resonance
- C. antenna power
- D. plate voltage

The key word here is *must*. All four of the above can be measured in a transmitting station but not all are required to be indicated or prevented. Only one is harmful to the extent that it can seriously affect enjoyment of the airwaves and cause interference to other Amateurs.

Overmodulation is the condition that prevails in telecommunication when the level of the modulating signal [the intelligible portion holding information—such as spoken audio from a mic] exceeds the value necessary to produce 100% modulation of the carrier. A carrier signal is one with a steady waveform, constant height (amplitude) and frequency shown in the diagram as the envelope. Modulation is superimposed on the carrier at the transmitter and recovered at the receiver.

In layman's terms, the signal is going "off the scale". Overmodulation results in spurious emissions by the modulated carrier, and distortion of the recovered modulating signal. This means that the envelope of the output waveform is distorted. The usual way of ensuring you are not over-modulating is to use the ALC on your HF radio, which will tell you if the audio level is too high. It is also good practice to monitor your own audio while transmitting, as the presence of distortion will be a sure sign that your audio is driving the transmitter too hard.

In the diagram at left, A indicates an Amplitude Modulated (AM) signal that is modulated to a low percentage. When modulation is increased to 100%, as in B, we are on the threshold of overmodulation. When increased above 100% as in C, the signal is said to be overmodulated resulting in distortion and spurious emissions.

Resonance is a desirable state when tuning to a specific frequency but does not have to be measured. Antenna power and plate voltage may be measured but that is also not mandatory.

The correct answer to this question therefore is 'A' Overmodulation.

~ John VE7TI

**More information on overmodulation?**

<https://books.google.com/books>

### *SARC Is Planning A Basic Course*

If you know of someone looking to take the Basic qualification course to obtain their Amateur Radio license, we are considering a comprehensive 8-week course starting in April. Further details will be provided in the February Communicator.





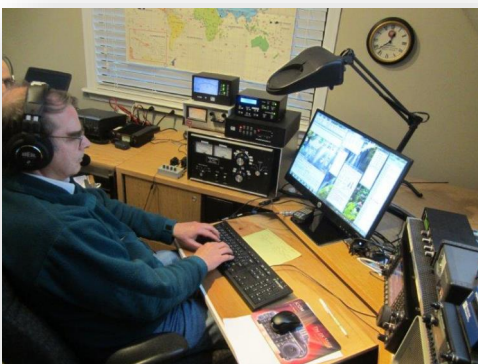
*Satellite successes*



*Interesting Meeting Presenters*



*Attendance at HamFests*



*Great contest training at VA7XB and VE7IO... and it paid off with several high contest rankings*



*A good turnout and decent weather for a successful Foxhunt*



*Our new President and the 220 Repeater*



*Our best Field Day showing ever... 1st place in Canada regardless of category*



*A successful Langley Cruise-In*





January 2016



## Adam's Junk Box

Adam Foley N1RKW

### *What Is Radio, Really?*

*Adam Foley N1RKW has been around ham radio most of his life, but didn't smarten up and get his license until 2008. Since then he has gone on to great heights (the 12' high roof of his old house, and the 3rd floor apartment he's in now), and recently decided to take up writing a monthly column about ham radio and electronics, two of the subjects he knows a little bit about (but not much). He lives in Laconia, NH with his incredibly tolerant wife and equally tolerant son.*

Well, here we are in a new year. There's snow on the ground, it's colder than the Wicked Witch of the West's left armpit outside, and winter is here for good. Actually it's still November as I write this, but if there's anything predictable about New Hampshire's unpredictable weather it's that the weather in January generally sucks. Good antenna weather, if you follow the axiom that an antenna's performance is inversely proportional to the quality of the weather at the time of installation.

This, and many other sayings of a similar nature make radio out to be a magical thing that only ever truly works properly for those who were lucky enough to be educated at either MIT or Hogwarts. I'm not one of those folks, so getting a grasp on what is actually happening when one ham's voice is heard 12,000 miles away by another ham is a bit of a stretch for me.

Let's go over the basics: Let's say a fictional ham named Joe is talking to another fictional ham named Ed. When Joe speaks into his microphone, his voice is amplified and superimposed upon a much higher frequency signal (called the carrier) and then amplified again before being sent to a piece of wire hanging up somewhere nearby (also known as an antenna). All of the mixing and amplification is done in circuits that exist within Joe's radio.

Somewhere many miles away from Joe, Ed has his own radio tuned to the same carrier frequency Joe is transmitting on. He has his own piece of wire hanging up somewhere nearby, and a radio similar to Joe's. That radio "hears" the signal coming in from the wire, amplifies it, rectifies it, amplifies it again and sends this amplified signal to a coil of wire

attached to a piece of paper (also known as a speaker).

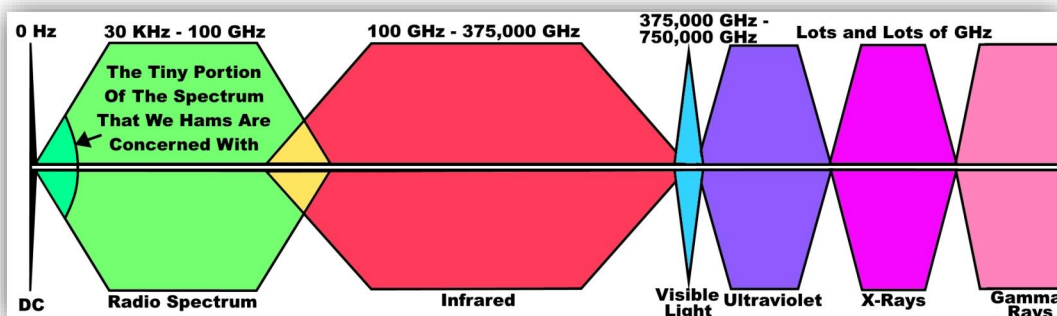
Now let's look at the amazing part of this: IT ACTUALLY WORKS!!!

Do any of us really understand how an antenna actually works? Do any of us even bother to think about it? It just works! The only time most of us put any thought into the science of radio transmission is when our antennas DON'T work. Even then we tend to be mostly concerned with what's going on in between the radio and the antenna rather than what's going on between our antenna and the other ham's antenna. But what does actually happen between the antennas?

The first thing that most of us intrinsically know but don't actually think much about is the simple fact that radio is light, and light is radio. The only difference between the radio waves carrying Joe's voice, the microwaves cooking Adam's frozen pizza, the radar system reporting weather information, the light coming from the Sun, the x-rays showing the fracture in little Susie's leg (fictional little Susie is not a ham, and therefor was injured playing on a jungle-gym instead), and the gamma rays boiling water to power the steam turbines at the local nuclear power plant *is their frequency*. That's it. They're all manifestations of the same thing: light, or electromagnetic waves. Even the different colors we see are just the way our brains interpret different frequencies of visible light.

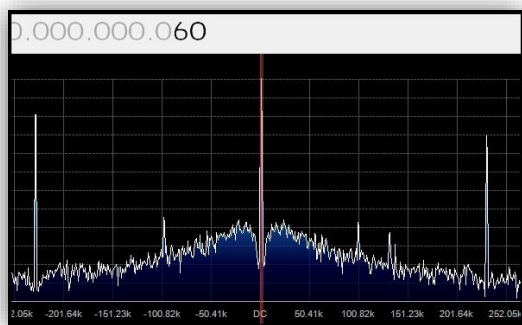
On the chart I've drawn up (*next page*), the various portions of the electromagnetic spectrum are indicated. Starting from the left side, we have DC or direct current. This is not technically radio yet, as you need oscillations to transmit radio,





*The electromagnetic spectrum*

and DC doesn't oscillate. It also has an infinite wavelength, and as we know, an infinitely long antenna would be very difficult to build, and just wouldn't fit in the back yard. So DC is the starting point, but the electromagnetic spectrum technically starts just above DC. Most people don't think of it being radio until the frequency is above 20 KHz and therefore above the audio range, but audio is actually pressure waves moving through a substrate (usually air). Electromagnetic waves do not need a substrate and can travel forever, which is why we can receive radio waves from outer space (not to mention receiving light from the Sun, Moon, and stars). The biggest, most powerful radio transmitter in the world actually transmits well below the 20 KHz audio "cutoff" frequency, at only 50 or 60 Hz, depending on which part of the world it's in. I'm referring to the power grid, which looks like this on a radio receiver that is capable of receiving signals that low.



In this case, the radio receiver is a software defined radio (something that I will discuss in a future article) tuned to 60 Hz. As you can see, there is quite a strong signal there. In case you are wondering,

there is no such thing as "negative frequency". The signals to the left of the little red zero line are simply reflections of those on the right created by software that doesn't really know how to handle 0 Hz properly, so they should be ignored.

From roughly 150 KHz to roughly 10 GHz are the frequencies that most hams will be concerned with, and it's this tiny slice of the spectrum that most of us think of when we think about radio waves. On my chart, it's the part represented by the dark green bit just to the right of the DC line. While there are a few hams that operate on higher frequencies than that, most of us operate exclusively below 10 GHz. In fact, most of us never venture much above 450 MHz. This is mostly because available ham radio gear doesn't usually cover higher bands than 70 cm, but this may be changing in the future as more of us take advantage of the glut of 2.4 GHz and 5 GHz Wi-Fi gear on the market.

The portion of the spectrum we call "radio" goes up to roughly 100 GHz, give or take a few hundred GHz (it depends who you ask). It overlaps significantly with "infrared", which is the name given to the chunk of spectrum that ranges from roughly 100 GHz to about 375 THz, the beginning of the portion of the spectrum called "visible light" for rather obvious reasons. Visible light ranges from roughly 375 THz (800nm wavelength) to roughly 750 THz (400nm wavelength). That is if my math is correct, anyway. Everyone talks about visible light in terms of wavelength instead of frequency, so I had to convert 800nm - 400nm to 375 THz to 750 THz and I hope I got it right. I don't trust my math gland, it's been faulty for as long as I can remember.

*The biggest, most powerful radio transmitter in the world actually transmits well below the 20 KHz audio "cutoff" frequency, at only 50 or 60 Hz, depending on which part of the world it's in. I'm referring to the power grid*

January 2016

*...so what is actually happening between the antennas?*

The frequencies immediately above visible light are called “ultraviolet”, and now we start getting into the more dangerous part of the electromagnetic spectrum. Electromagnetic waves at these frequencies and above are what is called “ionizing radiation”, meaning that anything exposed to these waves can have the charges of its atoms changed in a process called “ionization”. This isn’t such a bad thing if you’re a rock, but if you’re a mote of dust or a strand of DNA you’re in for a bad day. This is the portion of the spectrum that most people think of when they think of “radiation”, though technically waves that occur at any frequency in the electromagnetic spectrum are radiation. X-rays are even more energetic and therefore potentially damaging than ultraviolet, and gamma rays are the most energetic form of radiation of all. There aren’t any frequencies higher than the highest possible frequency of gamma rays, because science. Actually it has to do with the wavelength’s relation to Planck length, but that would take another whole article to explain, not to mention needing someone far more intelligent than me to write it.

So that’s the spectrum in a nutshell, so what is actually happening between the antennas?

Like radiation in all portions of the electromagnetic spectrum, radio waves are carried by photons. Our antennas, which are nothing more than lengths of copper wire or steel rods in most cases, actually convert electrical signals to electromagnetic signals. Remember how I said that audio signals are pressure waves carried through a substrate? Electrical signals, which is what your radio works with, are much the same. They can be at the same frequencies as electromagnetic waves, but they need a substrate through which to propagate, usually wires and circuits. When these electrical signals are sent to an antenna, the antenna will convert most of the electrical signal to an electromagnetic one and transmit it out through space (as I also said before, electromagnetic radiation does not need a substrate, so it can pass through the near nothingness of space).

Here’s why having the right antenna is so important: The transmitting antenna will reflect most signals back to the transmitter, except those that are within the frequency range it’s tuned for (and sometimes at a few frequencies it isn’t specifically tuned for as well). This is why we tend to put so much stock in what our SWR meters tell us, as an antenna that is reflecting power back toward the transmitter isn’t doing what we want it to and is definitely doing what we don’t want it to. Having the right antenna on the receiving end is just as important, as an antenna will only strongly receive the frequencies that it is tuned to. Consider the fact that we are plucking signals out of space that may only induce a fraction of a microvolt into our antenna. That’s less than a millionth of a volt! Yes, most of our ham radios really are that sensitive. For example, the Yaesu FT-857D is sensitive down to 0.2 microvolts on the worldwide ham bands. This is really quite astonishing when you think about it, and yet those are not exceptional figures. Most modern ham radios are similarly sensitive. As sensitive as they are, our radios need all the help they can get. A properly tuned antenna usually works well for both transmitting and receiving, though there are one or two exceptions to this rule of thumb (a Beverage antenna, for example, generally only works well for receiving).

Let’s see how Joe and Ed are doing. Joe is in central New Hampshire and is operating on the 20 meter band (14.000 - 14.350 MHz) transmitting at 100 watts. The photons are just pouring out (radiating, actually) of his antenna at an astonishing rate (close to the speed of light, actually). If you could see radio waves at that frequency, his antenna would probably resemble a very bright fluorescent tube. The space immediately around it would appear to be very brightly lit, much the same way a flood light can light up a large area. In his yard, Joe’s signal is quite strong, and would probably overload a receiver tuned to his frequency the same way an intense light source can overload a digital camera. Receiver overload is the name given to the phenomena of a receiver receiving a voltage higher than it is designed to handle, which can make them

fizzle and pop in a way that will make you and your wallet cry. This, however, is not the subject of this article, so quit whining about your damaged HT. Step out of Joe's yard, and the signal strength drops off. If we could see Joe's signal, it would not be quite as bright here but would still be easy to see. Go further away and the signal strength continues to drop, and does so literally exponentially. The apparent brightness would continue to decrease, if we could see the signal. By now it might only appear as a pinpoint light source.

Radio signal strength is determined by the inverse-square law, which is math. Ick. In this case, however, we don't have to grab our scientific calculators and a nearby mathematics professor. The inverse-square law simply says that every time you double the distance from a radiation source, in this case Joe's antenna, your received signal strength is divided by four. With that in mind, we can only wonder how it is that Ed, who lives in Perth, Australia, nearly 12,000 miles from Joe, can receive his signal at all. The signal started off quite strong, but by the time it bounced from Earth to stratosphere and back again enough times to make it all the way around to the other side of the world, the signal has become quite weak indeed. If we were able to see radio, Joe's signal would no longer be visible against the background light, which we can consider to be the equivalent of the RF noise floor. I can't say it enough, the right antenna is absolutely vital to transmitting and receiving radio signals, especially over long distances.

If Joe had been using his autotuner hooked up to say, the steel toe in his right boot, there's no way that Ed would have been able to receive his signal. Likewise, if Joe was using the best antenna possible but Ed was using a pipe cleaner, there's no way that Ed would hear Joe's signal. Both stations need to use the best possible antenna. Most of us, however, will need to come up with a compromise of some sort to match our individual location and circumstances, so we need to do the best that we can and hope that it works.

So what does happen to the signal? In the case of Joe's 20 meter transmission, if atmospheric conditions are good it will

bounce from Earth to sky and back again multiple times. It will continue to do this for a while, though it will attenuate (lose power) very quickly down to well below the noise floor as some of it gets absorbed by the atmosphere and ground. Signals above a certain frequency called the MUF (maximum usable frequency), which changes continuously depending on atmospheric conditions, will not bounce around the Earth and will instead continue off into outer space, forever. Yes, an alien from Alpha Centauri may indeed be listening to that rant from 4 years ago about your wife's guacamole waffle recipe that gives you indigestion. You never know who might be listening.

In Ed's case, a very small portion of Joe's signal is induced into his antenna, and is amplified and converted back to audio by his transceiver, as I mentioned above. Does Ed picking up this small amount of signal have any effect on the signal in general? In other words, does the fact that Ed picked up this minute signal preclude anyone else from picking it up, sort of like sticking your hand in front of a flashlight prevents other people from seeing its light? In a word, no. More accurately, sort of but not really. Yes, Ed did take a tiny amount of energy out of the signal, but so did every tin can, car, tower, building, labradoodle, baseball hat, and rock that was exposed to the signal. So Ed did remove a small amount of the signal from the air, but not enough that anyone would notice it missing. Simply put, antennas do not work like vacuum cleaners, sucking the signal from the air. They work more like a solar cell. Put a small solar cell up and it will cast a very slight shadow, but everyone else around will have no trouble whatsoever seeing the Sun.

I've used the term "electromagnetic" an awful lot in this article. An explanation is in order. Unfortunately, there isn't anyone intelligent around to explain it, so you'll have to suffer through my attempt to make sense of EM field theory. I'm so sorry.

The word "electromagnetic" is, somewhat obviously, electric and magnetic combined, and this is a very good segue into how electromagnetic waves propagate. It's a little weird, and I don't completely understand it myself, but an

*...every time you  
double the distance  
from a radiation  
source, your received  
signal strength is  
divided by four.*



January 2016

## ADAM'S JUNK BOX

A Monthly Column By  
Adam Foley N1RKW



Guest Columnist Adam Foley N1RKW is a member of the Central New Hampshire Amateur Radio Club and contributes a monthly column "Adam's Junk Box" to their newsletter, also called The Communicator.

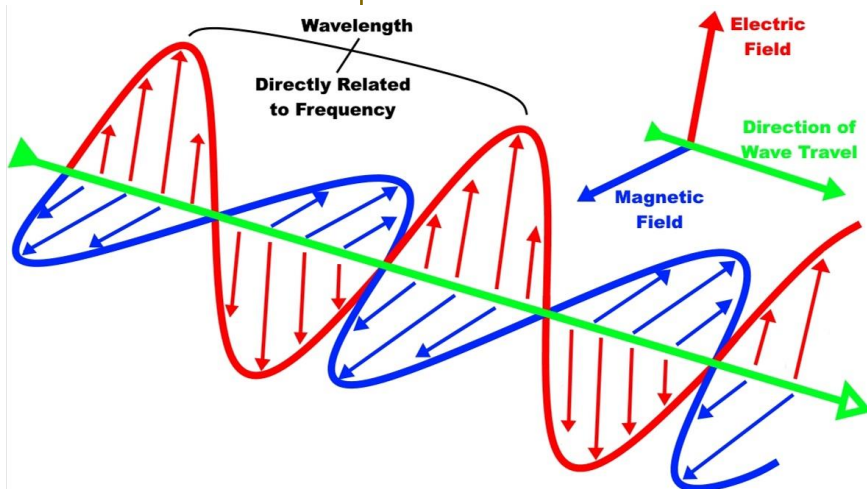
electromagnetic wave is a combination of an electric field and a magnetic field, perpendicular to each other. If your 2 meter antenna is mounted vertically, and it darn well should be, there will be an electric field radiating out in the same orientation as the antenna during transmit. Simultaneously, there will be a magnetic field radiating out from the antenna perpendicular to the electrical field. It's these two components of the radiated signal, the electric and magnetic fields, working together that make it so special. As I said earlier, an electro-magnetic field needs no substrate, can travel at the speed of light in a vacuum (of course it goes as fast as light, it IS light), and will continue on forever unless absorbed or blocked (pretty much the same thing). The carrier or "quanta" of this field is the not-so-humble photon, which is one of the most amazingly useful subatomic particles ever created, right up there with our old buddy, the electron. Going any further than this would involve going down the rabbit hole known as quantum physics, a subject that I have very little knowledge about. Discussing it wouldn't help you or me.

To sum up: Joe presses the PTT on his radio and through a complex series of electrical interactions inside his radio, an electrical RF (radio frequency) signal is produced and sent to his antenna. That electrical signal is converted to an EM RF signal by the antenna, a process referred to as transmitting. The EM signal from Joe's antenna then bounces off a specific layer of the Earth's atmosphere because in this case the signal's frequency is below the MUF (Maximum Usable Frequency). On the other side of the world, Ed's antenna converts a tiny portion of Joe's now very tiny EM signal back to a still quite tiny electrical signal and sends it to Ed's radio. Through a complex series of electrical interactions, the signal is rectified, amplified and then sent out to an audio speaker by Ed's radio. Ed then picks up his own microphone and starts the process all over again, probably without realizing just how complex the whole process really is.

Meanwhile, little Susie is still crying because she realized that her life would be much better if she had listened to her dad, Joe, and got her amateur radio license instead of going out to play at the local playground. As for the alien from Alpha Centauri, who knows what he thinks of your wife's guacamole waffle recipe. Maybe he would like it, unlike every other being in the known universe.

I hope you find this helpful, and perhaps even something approaching accurate. Please feel free to hit me up with questions, comments, corrections, quotations, and any Diet Dr. Pepper soda you may have. I can be reached via email at my call sign at hot mail dot com.

~ Adam Foley N1RKW  
Reprinted with permission



# January Events

Sun	Mon	Tue	Wed	Thu	Fri	Sat
<b>NOTE:</b> Check our VHF repeater at noon daily for an Echolink net. Local amateurs should check in on the VHF repeater as we try to build a group of international check ins from the Internet.			30	31	1	2 <b>0900 Klub Koffee Klatch:</b> Kalmar Family Restaurant, King George Blvd & 81 <sup>st</sup> Ave <b>CONTEST: ARRL RTTY RoundUp</b>
	3 <b>CONTEST: ARRL RTTY RoundUp</b>	4	5 <b>1915 SEPAR Net</b> <b>2000 SARC Net</b>	6	7	8 9 <b>0900 Klub Koffee Klatch:</b> Kalmar Family Restaurant, King George Blvd & 81 <sup>st</sup> Ave <b>CONTEST: NA QSO Party CW</b>
	10 <b>CONTEST: NA QSO Party CW</b>	11	12 <b>1915 SEPAR Net</b> <b>2000 SARC Net</b>	13 <b>SARC General Meeting</b>	14	15 16 <b>0900 Klub Koffee Klatch:</b> Kalmar Family Restaurant, King George Blvd & 81 <sup>st</sup> Ave
	17 <b>CONTEST: NA QSO Party SSB</b>	18	19 <b>1915 SEPAR Net</b> <b>2000 SARC Net</b>	20	21	22 23 <b>0900 Klub Koffee Klatch:</b> Kalmar Family Restaurant, King George Blvd & 81 <sup>st</sup> Ave <b>CONTEST: NA QSO Party SSB</b>
	24/31	25	26 <b>1915 SEPAR Net</b> <b>2000 SARC Net</b>	27 <b>SARC Exec Meeting</b>	28	29 30 <b>0900 Klub Koffee Klatch:</b> Kalmar Family Restaurant, King George Blvd & 81 <sup>st</sup> Ave

January 2016

## CLUB EXECUTIVE 2015-2016

### PRESIDENT

Mike Plant VE7AT

### VICE PRESIDENT

Brett Garrett VE7GM  
(Memberships)

### SECRETARY

John Brodie VA7XB

### TREASURER

Scott Hawrelak VE7HA

### DIRECTORS

John Schouten VE7TI  
(Communicator Editor)Stan Williams VA7NF  
(SEPAR Liaison)

Bill Gipps VE7XS

Al Peterson VA7ALZ



## QRT

Mike Plant VE7AT—SARC President

Club activities tend to quiet down at this time of the year as we prepare for Christmas and New Years. On behalf of your Executive, I would like to wish you all a Merry Christmas and a prosperous New Year. Please take extra care with any new projects Santa may bring, Hope to see you all arrive safe and sound at The January meeting.

### Enjoy this new twist on an old favorite

T'was the night before Christmas, and all through 2 meters, not a signal was keying up any repeaters.

The antennas reached up from the tower, quite high, to catch the weak signals that bounced from the sky.

The children, Tech-Pluses, took their H-Ts to bed, and dreamed of the day they'd be Extras instead.

Mom put on her headphones, I plugged in the key, and we tuned 40 meters for that rare ZK3.

When the meter was pegged by a signal with power, it smoked a small diode, and I swear, shook the tower.

Mom yanked off her phones, and with all she could muster, logged a spot of the signal on the DX packet cluster.

While I ran to the window and peered up at the sky, to see what could generate RF that high.

It was way in the distance, but the moon made it gleam, a flying sleigh, with an eight-element beam.

And a little old driver who looked slightly mean, so I thought for a moment, that it might be Wayne Green.

But no, it was Santa, the Santa of hams, on a mission, this Christmas, to clean up the bands.

He circled the tower, then stopped in his track, and he slid down the coax right into the shack.

While Mom and I hid behind stacks of CQ, this Santa of hamming knew just what to do.

He cleared off the shack desk of paper and parts, and filled out all my late QSLs for a start.

He ran copper braid, took a steel rod and pounded, it into the earth till the station was grounded.

He neutralized tubes in my linear amp, (never worked right before, now it works like a champ).

A new, low pass filter cleaned up the TV, he corrected the settings in my TNC.

He repaired the computer that would not compute, he backed up the hard drive and got it to boot.

Then, he reached really deep in the bag, a new fox? No, he pulled out a big heavy box.

Yes! The Ultimate Station! How could I deserve this? Could it be all those hours that I worked Public Service?

He hooked it all up and then really quickly, worked 100 countries, all down on 160.

I should have been happy, It was my call he sent, but the cards and the postage will cost two month's rent!

He made final adjustments, and left a card by the key: "To Joe, from Santa Claus, 73."

Then he grabbed his H-T, Looked me straight in the eye, punched a code on the pad, And was gone with no good-bye.

I ran back to the station, and the pileup was big, but a card from St. Nick would be worth my new rig.

Oh, too late, for his final came over the air, it was copied all over and was heard everywhere.

The Ham's Santa exclaimed what a ham might expect, "Merry Xmas to all, and to all, good DX!"

*Author: Unknown*

~ Mike VE7AT

## On the Web [ve7sar.net](http://ve7sar.net)

Between newsletters, watch your e-mail for announcements of events, monthly meetings and training opportunities. These announcements can also be found on our web page, or via:

**Twitter**  
[@ve7sar](https://twitter.com/ve7sar)

**FaceBook**

[SurreyAmateurRadio](http://SurreyAmateurRadio)

**Our YouTube Channel**  
[SurreyARC](http://SurreyARC)

**SARC Photo Albums**  
[Web Albums](#)

or

[tinyurl.com/SARCphoto](http://tinyurl.com/SARCphoto)





## *It's January*

ARDF Canada <http://ardf.ca> is our scheduled guest for January 13th. The program includes:

- What is ARDF Foxhunting?
- The development of a high performance/low cost 80m foxhunting receiver and micro transmitter
- Demonstration of the 80m receiver and micro transmitter
- A typical local ARDF Fox hunt
- Summer event plans

More information on page 17.

## Down The Log...

### SARC Monthly Meetings

2<sup>nd</sup> Wed. (Sept-Jun)  
1900 hr at the PREOC  
Emergency Mgmt BC  
14275 96<sup>th</sup> Avenue,  
Surrey, BC

### Weekly Club Breakfast

Saturday at 0900 hr  
Kalmar Family Restaurant  
8076 King George Blvd.  
Surrey

### SARC Net

Tuesday at 2000 hr local  
on 147.360 MHz (+)  
Tone=110.9

### SEPARS Net

Tuesday at 1915 hr local  
on 147.360 MHz (+)  
Tone=110.9

### VE7RSC Repeaters

2m: 147.360MHz+  
Tone= 110.9Hz  
IRLP node 1736  
Echolink node 496228

1.2m: 223.960 Mhz -1.6  
Tone=110.9

70cm: 443.775MHz+  
Tone= 110.9Hz  
IRLP node 1737

**SARC** hosts an Amateur Radio net each Tuesday evening at 8 PM. Please tune in to the VE7RSC repeater at 147.360 MHz (+600 KHz) Tone=110.9, also accessible on IRLP node 1736 and Echolink node 496228. On UHF we operate a repeater on 443.775MHz (+5Mhz) Tone=110.9 and Echo-Link Node 1736

	SEPARS Net 19:15 Hrs	SARC Net 20:00 Hrs
<b>1<sup>st</sup> Tuesday</b> Standby	Drew VA7DRW Jay VE7KC	Drew VA7DRW Brett VE7GM
<b>2<sup>nd</sup> Tuesday</b> Standby	Dixie VA7DIX Alan VA7BIT	Jinty VA7JMR Sheldon VA7XNL
<b>3<sup>rd</sup> Tuesday</b> Standby	Rob VE7CZV Vacant	Dixie VA7DIX Ralph VA7UB
<b>4<sup>th</sup> Tuesday</b> Standby	Jinty VA7JMR Dixie VA7DIX	John VA7XB Kapila VE7KGK
<b>5<sup>th</sup> Tuesday</b> Standby	Jinty VA7JMR Vacant	Mike VE7AT Brett VE7GM
Want a turn at Net Control? Contact the SARC Net Manager <a href="mailto:ve7at@gmail.com">ve7at@gmail.com</a>		



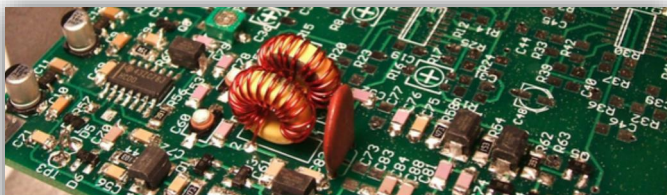
### We Have A SARC Patch!

These are suitable for sewing on a jacket, cap or your jammies, so you can proudly display your support for the club.

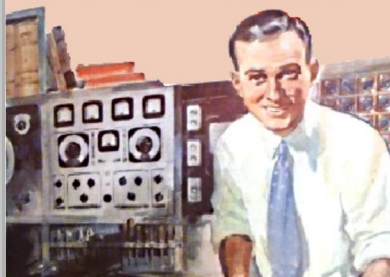
The price is \$4 each or three for \$10 and they can be picked up at a meeting or the weekly Koffee Klatch.

*We thank our sponsors  
for their SARC support.*

*Please support them.*



### AMATEUR RADIO REPAIR SERVICE



I am semi-retired with about 2,500 hours of HF SSB experience in servicing. I'm offering my technical talents to other amateurs that have HF equipment they need repaired or maybe even re-aligned back to the factory specifications. I have worked commercially as a bench tech since 1969. My rates are \$125/hr or based on estimates of a repair. To discuss your repair needs, please contact me.

Best 73,

**Terry Urbanowski VE7DPD**  
**Vernon, BC (250) 260-1318**



## Burnaby Radio Communications

**Michael J. Wong** VE7HMW  
President/Owner

4257 Hastings Street  
Burnaby, B.C. V5C 2J5  
Phone 604-298-5444  
Fax 604-298-5455

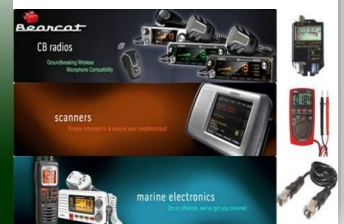
**Commercial / Amateur Radio**  
Email: [sales@burnabyradio.com](mailto:sales@burnabyradio.com)  
web: [www.burnabyradio.com](http://www.burnabyradio.com)



## FLEETWOOD DIGITAL PRODUCTS

Two Way Radios... For Less  
<http://www.fleetwooddp.com/digital>

[radio@fleetwooddp.com](mailto:radio@fleetwooddp.com)



### Latest Model Available!

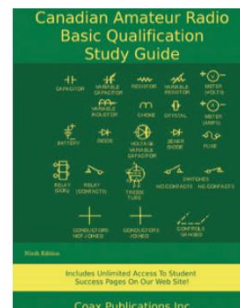
**QUAD BANDS TRANSMISSION** (including SW)  
**EIGHT BANDS RECEPTION** (including AM & SW)

Twin Band/Same Band Simultaneous Reception;  
Duplex Mode / Cross-Band Simultaneous TX/RX; Duplex Cross-Band Repeat;  
Same-Band Repeat on two Combined Radios; 8 groups of Scrambler SOS Function



## NEW FROM COAX PUBLICATIONS INC FOR 2015!

### 9TH EDITION: THE CANADIAN AMATEUR RADIO BASIC QUALIFICATION STUDY GUIDE



- ✓ Completely revised to address changes in technology in the five years since the 8th edition was produced
- ✓ Matched to the Industry Canada Question Bank update in 2014 with more context for the new and revised questions
- ✓ Still includes unlimited access to our acclaimed online Student Success Pages support
- ✓ New Ask The Professor help added for some questions

**Same Low Price! Just \$44.95 plus shipping and taxes.**

**Note for 8th Edition owners:** We are still supporting your book. The section references for the Industry Canada questions have changed in the new edition and we have changed our website to ensure that when a reference to a section is presented it will be correct for both editions. The selection is made automatically for you when you log on.

Order both Study Guides from our Secure Web Site: <http://www.coaxpublications.ca>  
or e-mail: [coaxpublications@iilife.ca](mailto:coaxpublications@iilife.ca)